

ABSTRACT OF THE DISCLOSURE

The invention provides a distributed architecture where each portion of published content may be divided into numerous (i.e., hundreds or thousands) of small fragments, and scattered amongst the peer systems in the network. Retrieval of data may be accomplished by downloading the contents in parallel, locating a replica of an original fragment if a particular peer system serving the original fragment becomes overloaded or disconnected from the network. This architecture allows the invention to take advantage of the asymmetric nature of most user connections to the Internet by utilizing a collection of small agent applications (agents) running in parallel to deliver content rapidly across the network. The distributed load balancing system used by the invention functions as an agoric resource allocation system, with agents trading favors with a bartering network. By using pricing to signal resource contention, the agents can optimize the system according to local needs and obtain the most efficient usage from available network resources. The invention also keeps track of which users provide resources, content and indexing services within the network through an internal micropayment system which denominates internal tokens (credits) in the same resources needed to provide the services (i.e., disk space, bandwidth and CPU cycles). The distributed data service built on top of this micropayment system provides a reliable and scaleable method for peer-to-peer content distribution. In addition, by distributing accounting using a micropayment system denominated in payment-in-kind (i.e., barter), the system is less expensive to operate and easier to bootstrap than conventional systems. By using the resources themselves as the backing for the payment system instead of having a real currency serve as a proxy for these resources within the accounting system, the disadvantages plaguing conventional systems can be positively addressed.